In the claims:

Claim 1. (**Currently amended**) A cardiovascular imaging agent comprising a radionuclide, said radionuclide being associated with a targeting moiety comprising a component of a process involved in plaque formation, wherein the targeting moiety is selected from (i) cells, including muscle cells, macrophages, foam cells, monocytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platele factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, and (vii) component of clotting cascades.

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Claim 2. (**Currently amended**) The agent of claim 1, wherein said radionuclide is selected from the group consisting of ^{123}I, ^{99m}Tc, ^{18}F, ^{68}Ga, ~~^{62}Cu~~ ^{62}Cu, and ^{111}In.

Claim 3. (**Original**) The agent of claim 1, wherein said radionuclide is ^{99m}Tc.

Claim 4. (**Original**) The agent of claim 1, wherein said radionuclide is associated with said targeting moiety by way of an auxiliary molecule.

Claim 5. (**Canceled**)

Claim 6. (**Original**) The agent of claim 1, wherein said agent comprises the product of combining said targeting moiety or precursor thereof with a chelating compound which chelates said radionuclide.

Claim 7. (**Original**) The agent of claim 6, wherein said chelating compound is selected from the group consisting of an $-N_2S_2$ structure, and $-NS^3$ structure, an $-N_4$ structure, and isonitrile, a hydrazine, a HYNIC group-containing structure, 2-methylthiolnicotinic acid group-containing structure, a carboxylate-group containing structure, an amino carboxylate, and a phenolate.

Claim 8. (**Original**) The agent of claim 1, wherein said plaque is an atherosclerotic plaque.

Claim 9. (**Currently amended**) A method of imaging cardiovascular tissue in a mammal, comprising administering to the mammal a cardiovascular imaging agent having a radionuclide, said radionuclide being associated with a targeting moiety comprising a component of a process involved in plaque formation, wherein the targeting moiety is selected from (i) cells, including muscle cells, macrophages, foam cells, monocytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platele factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor

necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, and (vii) component of clotting cascades.

Claim 10. (**Original**) The method of claim 9, wherein the method detects a cardiovascular lesion in a mammal, said method comprising the steps of administering to the mammal said imaging agent, detecting the spatial distribution of said agent accumulated in the mammal's cardiovascular system, wherein a detected accumulation of said agent in a region which is different from the detected accumulation of said agent in other regions is indicative of a lesion.

Claim 11. (**Original**) The method of claim 10, wherein said cardiovascular lesion is an atherosclerotic lesion.

Claim 12. (**Currently amended**) A kit for cardiovascular imaging, comprising a supply of the imaging agent or a precursor of the imaging agent having a radionuclide, said radionuclide being associated with a targeting moiety comprising a component of a process involved in plaque formation, wherein the targeting moiety is selected from (i) cells, including muscle cells, macrophages, foam cells, monocytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platele factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, and (vii) component of clotting cascades.

Claim 13. (**Original**) The kit of claim 12, further comprising at least one chelating agent, each chelating agent comprising an auxiliary molecule selected from the group consisting of mannitol, gluconate, glucoheptonate, and tartrate; and a reducing agent.

Claim 14. (**Original**) The kit of claim 13, wherein said reducing agent contains tin.

Claim 15. (**Original**) The kit of claim 13, wherein the radionuclide of said imaging agent is selected from the group consisting of ^{123}I, ^{99m}Tc, ^{18}F, ^{68}Ga, ^{62}CU, and ^{111}In.

Claim 16. (**Original**) The kit of claim 15, wherein said chelating agent(s) is (are) selected from the group consisting of an $-N_2S_2$ structure, and $-NS^3$ structure, an $-N_4$ structure, and isonitrile, a hydrazine, a HYNIC group-containing structure, 2-methylthiolnicotinic acid group-containing structure, a carboxylate-group containing structure, an amino carboxylate, and a phenolate.

Claim 17. (**Original**) The kit of claim 16, wherein the radionuclide is ^{99m}Tc.

Claim 18. (**Canceled**)